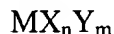


### AMENDMENTS TO THE CLAIMS

1. (Currently amended) A catalyst for producing aliphatic polycarbonate, comprising a mixture of:

(a) a rare-earth coordination compound with the formula:



wherein, M is a rare earth element selected from the group consisting of Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tu, Yb, Lu, and a mixture of two or more of the rare earth element; X is a carboxylic acid group or sulfonic acid group with Ka values above  $10^{-3}$ ; Y is selected from the group consisting of -Cl, -NO<sub>2</sub>, =O, -OH; n and m ~~is dependently an integer~~ are independently integers from 0 to 3;

(b) an alkyl metal compound, wherein the metal is zinc, magnesium or aluminum, and the alkyl group is selected from the group consisting of CH<sub>3</sub>-, CH<sub>3</sub>CH<sub>2</sub>-, CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>-, (CH<sub>2</sub>)<sub>2</sub>CH-, CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>-, (CH<sub>2</sub>)<sub>2</sub>CHCH<sub>2</sub>-, and CH<sub>3</sub>CH(CH<sub>3</sub>)CH<sub>2</sub>-;

(c) a polyol selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, 1,2-propanediol, 1,3-propanediol, glycerin and a mixture thereof; and

(d) a carbonate selected from the group consisting of ethylene carbonate, propylene carbonate, cyclohexylene carbonate and a mixture thereof,

and obtained by stirring or grinding said mixture, and then aging it for 1-24 hours under 0-50 times atmospheric pressure of nitrogen, argon, carbon dioxide or under super critical condition.

2. (Original) The catalyst of claim 1, wherein the carboxylic acid group or sulfonic acid group is selected from the group consisting of trifluoroacetic group, trichloroacetic group, dichloroacetic group, chloroacetic group, o-chlorobenzoic group, α-tartaric acid group, benzene sulfonic acid group, naphthalene sulfonic acid group and a mixture of one or more of them.

3. (Original) The catalyst of claim 1, wherein the rare earth metal element is yttrium or neodymium.

4. (Original) The catalyst of claim 1, wherein the carboxylic acid group of the rare earth coordination compound is trifluoroacetic group, trichloroacetic group or dichloroacetic group.

5. (Original) The catalyst of claim 1, wherein Y is -Cl or -OH.

6. (Original) The catalyst of claim 1, wherein the metal alkyl metal is zinc, and alkyl group is  $\text{CH}_3\text{CH}_2-$ ,  $\text{CH}_3\text{CH}_2\text{CH}_2-$ ,  $(\text{CH}_2)_2\text{CH}-$ , or  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2-$ .

7. (Original) The catalyst of claim 1, wherein the polyol is 1,2-propylene glycol, or glycerin.

8. (Original) The catalyst of claim 1, wherein said carbonate is propylene carbonate.

9. (Currently amended) A method for preparing a catalyst for producing aliphatic polycarbonate~~the catalyst of claim 1~~, comprising the steps of:

(a) sequentially adding

a polyol selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, 1,2-propandiol, 1,3-propandiol, glycerin and a mixture thereof;

a rare-earth coordination compound of the formula  $\text{MX}_n\text{Y}_m$ , wherein, M is a rare earth element selected from the group consisting of Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tu, Yb, Lu, and a mixture of two or more of the rare earth element; X is a carboxylic acid group or sulfonic acid group with  $K_a$  values above  $10^{-3}$ ; Y is selected from the group consisting of -Cl,  $-\text{NO}_2$ , =O, -OH; n and m are independently integers from 0 to 3;

and an alkyl metal compound, wherein the metal is zinc, magnesium or aluminum, and the alkyl group is selected from the group consisting of  $\text{CH}_3-$ ,  $\text{CH}_3\text{CH}_2-$ ,  $\text{CH}_3\text{CH}_2\text{CH}_2-$ ,  $(\text{CH}_2)_2\text{CH}-$ ,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2-$ ,  $(\text{CH}_2)_2\text{CHCH}_2-$ , and  $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2-$ ;

to ~~the~~ a carbonate selected from the group consisting of ethylene carbonate, propylene carbonate, cyclohexylene carbonate and a mixture thereof;

- (b) stirring or grinding ~~the~~ a mixture thus obtained;
- (c) aging the mixture for 1-24 hours under 0-50 times atmospheric pressure of nitrogen, argon, carbon dioxide or under supercritical condition.

10. (Previously presented) The method of claim 9, wherein the carboxylic acid group or sulfonic acid group of step (a) is selected from the group consisting of trifluoroacetic group, trichloroacetic group, dichloroacetic group, chloroacetic group, o-chlorobenzoic group,  $\alpha$ -tartaric acid group, benzene sulfonic acid group, naphthalene sulfonic acid group and a mixture of one or more of them.

11. (Original) The method of claim 9, wherein the mixture in step (c) is aged under the CO<sub>2</sub> atmosphere.

12. (Currently amended) A method for preparing the aliphatic polycarbonate according to claim 9 by using the catalyst of claim 1, further comprising the steps of:

- (d) adding a catalyst prepared according to steps (a) - (c) of claim 9 ~~the catalyst of claim 1~~ and an epoxide into an autoclave;
- (e) filling the autoclave with carbon dioxide and maintaining the pressure between 10-40 atmospheres;
- (f) allowing copolymerization reaction to proceed at 60-100°C for 5-24 hours; and
- (g) adding a HCl/methanol solution or an aqueous HCl solution to terminate the reaction, thus obtaining ~~a~~ the polycarbonate.

13. (Original) The method of claim 12, wherein the process is carried out in the absence of solvent.

Claim 14. (Previously presented) The method of claim 12, wherein the HCl/methanol solution is about 50% by weight.

Claim 15. (Previously presented) The method of claim 12, wherein the aqueous HCl solution is about 5% by weight.

## **SUMMARY OF INTERVIEW**

### Exhibits and/or Demonstrations

none

### Identification of Claims Discussed

Claims 1, 9, and 12.

### Identification of Prior Art Discussed

References cited in the 103 rejection (Tan (Macromolecules), Tan (ACS Preprints) and Stevens (U.S. Patent no. 3,248,415)) were discussed.

### Proposed Amendments

Amendments to the claims were proposed. Claim 9 was presented in independent form. Amended claim 1 was also presented which added the limitation that the catalyst is obtained by "stirring or grinding... and then aging..". Claim 12 was also presented in independent form, but, following the recommendation of the Examiner, claim 12 is now dependent upon claim 9.

### Principal Arguments and Other Matters

Regarding claims 9-11, it was argued that the cited references did not teach the method steps of sequentially adding (step a), stirring/grinding the mixture (step b) and aging (step c). A 132 Declaration was also discussed to overcome the rejection of claims 1-8.

### Results of Interview

The Examiner agreed to reconsider the allowability of claims 9-11 on the basis that the cited references did not teach the aging step as set forth in claim 9. The Examiner also suggested making claim 12 depend from claim 9 which we have done with this amendment. Regarding claims 1-8, the Examiner agreed to consider a Declaration that would show that the aging had an effect upon the activity and/or yield of the catalyst.